

CLAIMS

We Claim:

1. A compressed air foam fire fighting system comprising:
 - a primary fluid delivery conduit;
 - a source of fluid;
 - a pump connected to said source and to said conduit to deliver said fluid through said conduit;
 - a first engine operatively connected to drive said pump;
 - a foaming agent reservoir and means for conducting foaming agent from said reservoir to said conduit;
 - a differential pressure valve in said conduit connected to said foaming agent reservoir;
 - a metering valve connected to said reservoir for varying the proportion of said foaming agent to said fluid; and
 - conduit means for connecting said metering valve to said foaming agent reservoir and to said differential pressure valve;
 - an air compressor connected to said conduit;
 - a second engine driving said air compressor; and
 - an air metering valve selectively varying the amount of air supplied to said conduit.

2. A system as claimed in claim 3 wherein said foaming agent reservoir includes a container and a flexible bladder in said container containing said foaming agent.

3. A system as claimed in claim 1 further comprising a valve connected between said foaming agent reservoir and said differential pressure valve for disconnecting the flow of foaming agent to said differential pressure valve.

4. A system as claimed in claim 1 further comprising a control panel including key operated starter switches for each of said first engine and said second engine, throttles for each of said engines, an oil pressure gauge, and an air pressure gauge for said compressor and a sub-panel containing selecting means connected to said metering valve for selecting a desired proportion of foaming agent to said fluid.

5. A system as claimed in claim 4 wherein said fluid is water, said control panel further comprises a valve for disconnecting said pump from said source and connecting said pump to another source of water, a valve for blocking or supplying water or water/foam solution, and a valve for supplying or blocking water/foam and air mixture.

6. A system as claimed in claim 4 wherein said control panel further includes a control for selecting a desired volume of water/foam solution and a second control for selecting a desired air flow rate.

7. A system as claimed in claim 1 further comprising a hose reel and conduit means connected to said conduit for driving said hose reel.

8. A system as claimed in claim 1 further comprising a valve connected to said pump for disconnecting said pump from said source and connecting said pump to another source of said fluid.

9. A system as claimed in claim 1 wherein said fluid is water, said air compressor includes a lubrication system, a heat exchanger is connected to said lubrication system, and said heat exchanger includes a water passage connected to receive water from said pump for cooling said lubrication system.

10. A system as claimed in claim 1 further comprising a foam solution conduit and a foam selector metering valve in said foam solution metering conduit connected to said differential pressure valve, said foam solution metering valve including a rotatable plate having a plurality of different sized orifices movable into said foam solution conduit for varying the quantity of foam solution flowing through said foam solution conduit.

11. A system as claimed in claim 1 wherein said air metering valve includes a compressed air flow passage and a rotatable plate having a plurality of different sized orifices movable into said flow passage for varying the quantity of air supplied to said foam solution conduit.

12. A compressed air fire fighting system comprising:
 - a water pump connected to a source of water;
 - an engine for driving said water pump;
 - a water delivery conduit having an inlet connected to said pump and an outlet;
 - a differential pressure valve connected between said inlet and said outlet;
 - a foaming agent reservoir;
 - means responsive to water pressure at said inlet for conducting foam agent from said reservoir to said water delivery conduit to provide a mixture of foam agent and water;
 - an air compressor and a second engine driving said air compressor;
 - an air conduit connected to said air compressor;
 - an air metering valve for varying flow through said air conduit;
 - an outlet conduit including mixing means connected to said water delivery conduit downstream of said differential pressure valve and connected to said air conduit for providing a mixture of compressed air, foam and water for fighting fires.

13. A system as claimed in claim 12 further comprising an air injection venturi member having a flow passage connected to receive water/foam solution from said foam selector metering valve and a venturi member having a plurality of ports positioned at the throat of said venturi member connected to said air metering valve for mixing compressed air with said water/foam solution.

14. A system as claimed in claim 12 wherein said system is installed within a frame and carried in the bed of a pick-up truck.

15. A system as claimed in claim 12 wherein said source of water is a tank carried on said truck, a water valve is connected between said tank and said pump, and said water valve is movable to a first position connecting said pump to said tank, and a second position connecting said pump to an external source of water.

16. A system as claimed in claim 12 wherein said air compressor has a lubrication system, a heat exchanger is connected to said lubrication system, and cooling water is supplied from said pump through said heat exchanger and back to said tank.

17. A system as claimed in claim 12 wherein said mixing means comprises an air injection venturi connected to said outlet conduit and to said air conduit having a venturi member including a plurality of ports positioned at the throat of said venturi member connected to said air conduit for mixing compressed air with said mixture of foam agent and water.

18. A compressed air fire fighting system comprising:

- a source of water under pressure;
- a water delivery conduit having an inlet connected to said source and an outlet;
- a differential pressure valve connected between said inlet and said outlet;
- a foaming agent reservoir and means responsive to water pressure from said source for conducting foam agent to said differential pressure valve to provide a water/foam solution;
- a foam selector metering valve connected to said outlet;
- a source of compressed air and an air conduit carrying said compressed air;
- an air metering valve in said air conduit;
- mixing means connected to said foam selector metering valve and to said air metering valve for mixing compressed air with said water/foam solution.

19. A system as claimed in claim 18 wherein said mixing means comprises an air injection venturi having a flow passage connected to receive water/foam solution from said foam selector metering valve and a venturi member having a plurality of ports positioned at the throat of said venturi member connected to said air metering valve for mixing compressed air with said water/foam solution.

20. A compressed air fire fighting system comprising:

- a water pump connected to a source of water;
- an engine for driving said water pump;
- a water delivery conduit having an inlet connected to said pump and an outlet;
- a foaming agent reservoir;
- a differential pressure valve connected between said inlet and said outlet including means responsive to water pressure at said inlet for conducting foam agent from said reservoir to said water delivery conduit to provide a mixture of foam agent and water; and
- a control panel including a foam selector valve for varying the proportion of foaming agent and water connected to said conduit and a valve controlling the delivery of water or water/foam mixture from said conduit.

21. A system as claimed in claim 20 wherein said control panel further comprises a starter switch and throttle for said engine, a wobble pump for priming said pump, and a valve controlling the output of said conduit.

22. A system as claimed in claim 20 further comprising a valve connected to said pump for disconnecting said pump from said source and connecting said pump to another source of water.

23. A system as claimed in claim 20 further comprising a foam solution conduit and a foam selector metering valve in said foam solution metering conduit connected to said differential pressure valve, said foam solution metering valve including rotatable plate having a plurality of different sized orifices movable into said foam solution conduit for varying the quantity of foam solution flowing through said foam solution conduit.

24. A system as claimed in claim 9 wherein heated water from said lubrication system is connected to said source.

25. A transportable universal fire fighting system comprising:

- a mount suitable for carriage on the bed of a truck;
- a tank for transporting water;
- a pump for pumping water from said tank and a water conduit;
- a reel in hose for dispensing fire fighting liquid from said system;
- a container for carrying foam concentrate;
- an air compressor;
- means for connecting said system to alternate sources of water as a fire fighting fluid;
- selector valve means connected to the source of foam concentrate and to said water conduit to provide a measured proportion of foam to water to provide a water/foam mixture;

an air injection valve, including a venturi, for introducing compressed air into said water/foam mixture;

means for powering said pump and compressor whereby said system is capable of applying any one of the following as a fire fighting fluid:

- a) water;
- b) water/foam combination;
- c) aspirated water/foam combination;

while being supplied with water selectively from said tank or from an external source.

26. A combination in accordance with claim 1 wherein said means for driving said compressor and air pump are independent engines.

27. The system in accordance with claim 1 where said mount is dimensioned to be carried on a pick-up truck or on a vehicle having a width in the order of 48 inches or greater.